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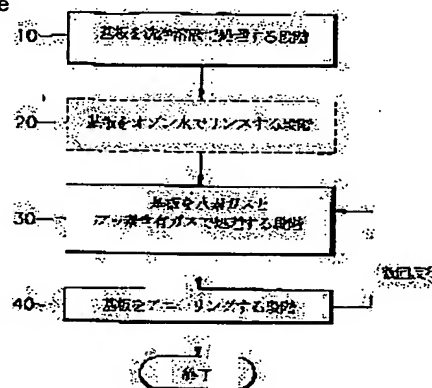
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(54) REMOVAL METHOD OF CONTAMINANT OF INTEGRATED CIRCUIT SUBSTRATE USING CLEANING SOLUTION

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a cleaning solution for removing contaminants from a substrate of an integrated circuit and a removal method of the contaminants.

SOLUTION: After a substrate is treated with hydrogen peroxide cleaning solution, comprising chelating agent, the substrate is treated with hydrogen gas and fluorine containing gas, and lastly the substrate is annealed. The cleaning solution comprises ammonium, peroxide hydrogen, deionized water and chelating agent. The chelating agent comprises one to three kinds of compounds selected from a group comprising carboxylic acid compound, phosphonic acid compound and hydroxyl aromatic compound. Fluorine containing gas is selected from among a group, consisting of nitrogen trifluoride (NF₃), sulfur hexafluoride (SF₆) and chlorine trifluoride (ClF₃). Thereby, various contaminants such as organic contaminant, particles and metallic contaminants can be removed effectively. Especially, reverse contamination problem due to the reattaching of metallic contaminant is eliminated and various oxide films, such as natural oxide film can be effectively removed without damaging the quality of lower the film.



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